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February 12, 2004

MCFADDEN, FINCHAM
606 - 225 Metcalfe Street
OTTAWA Ontario
K2P 1P9

Application No.	:	**2,321,937**
Owner	:	SPIEL ASSOCIATES, INC.
Title	:	**COMBINATION PLASTIC SPIRAL FORMING MACHINE AND SEMI-AUTOMATIC PLASTIC SPIRAL BINDING MACHINE**
Classification	:	B42B-5/12
Your File No.	:	**5089-51__MO'H/mc**
Examiner	:	Daniel Weslake P. Eng.

YOU ARE HEREBY NOTIFIED OF A REQUISITION BY THE EXAMINER IN ACCORDANCE WITH SUBSECTION 30(2) OF THE *PATENT RULES*. IN ORDER TO AVOID ABANDONMENT UNDER PARAGRAPH 73(1)(A) OF THE *PATENT ACT*, A WRITTEN REPLY MUST BE RECEIVED WITHIN **6** MONTHS AFTER THE ABOVE DATE.

This application has been examined taking into account applicant's correspondence received in this office on December 15, 2003 and January 21, 2004.

The number of claims in this application is 26.

A further search of the prior art has revealed the following:

Primary References

References Applied:			
US Patent (re-applied)			
4,249,278	Feb. 1981	US Cl. 11/1 A	**Pfäffle**
US Patent			
5,806,676	Sept. 1998	US Cl. 206/341	**Wasgien**

Secondary Reference

US Patent			
4,382,586	May 1983	US Cl. 266/259	**Reese**

References of Interest (Not applied at this time)
US Patents

3,944,049	March 1976	US Cl. 198/34	**Graybill**
6,000,897	Dec. 14th, 1999	US Cl. 412/40	**Dejarlais**

Non-patent Prior Art

Operator's Manual July 2, 1990 **Renz**
Renz Automatic Plastic Spiral Winding and Length Cutting Machine

Pfäffle discloses a method and machine for feeding plastic thread from a bulk spool, forming the thread into a spiral configuration and inserting the spiral into a perforated sheet group so that the spiral may be cut and bent to form a spiral binder. The machine comprises a thread input section, a spiral-forming mandrel, a thread heating section, a coiled thread cooling section and a spiral binder feeding and binding section where the cooled, formed spiral binding coil is inserted into the perforated sheet group. More specifically, the method of this invention comprises the steps of taking a plastic thread from a bulk spool in a continuous manner, feeding the thread to a first section where it is heated and at the same time formed into a spiral, continuing to feed the heated thread while maintaining its spiral shape to a second section where the thread is cooled while still holding its shape, and continuing to feed the cooled thread into a perforated sheet group to form a spiral binder, said steps all being carried out in a continuous manner. The machine of this invention comprises, in combination, a mandrel, a sleeve surrounding said mandrel, a spiral groove formed between said sleeve and mandrel, means feeding bulk plastic thread into said spiral groove at one end of the mandrel, means rotating the mandrel, the mandrel and sleeve extending through a first section and a second section, heating means in the first section, cooling means in the second section, and means at the exit of said second section supporting a perforated sheet group in position to receive a spiral plastic binder from said second section.

Wasgien discloses a carrier or conveyor (carrier plate (1)) for transporting spiral binding combs (3) from a forming machine to a binding machine wherein the spiral binding combs (3), at a first location, are cut to a specific length, they are then placed into the carrier plate (1) in order to be transferred, by mechanical transport means comprised of rolls or cylinders, to a second location at which second location the spiral binding combs (3) are installed into the final, to be bound, product.

Reese discloses both a method and apparatus for controlling the rate of cooling of metal bars, particularly relating to a cooling bed for receiving metal bars at elevated temperatures resulting from a continuous bar casting and/or rolling operation wherein the rate of bar cooling is sufficiently controlled to ensure that metal bars, having few internal stresses, result. The apparatus includes a bed that receives the hot bars at one end, conveyor means that laterally

transport the bars slowly across the bed, and a thermal insulated heat barrier means disposed below and above the bed for aiding in the control of the rate of bar cooling wherein the heat content on the conveyor is controlled by a number of factors, including bar spacing and conveyor speed, such that a substantially normalized bar exits at the bed discharge end. In this invention, the rate of cooling is controlled by a combination of regulating:

- bar spacing;
- conveyor velocity;
- the rate of convection cooling; and
- the rate of radiation cooling;

which factors, when properly regulated, provide the necessary conditions for producing metal bars having the desired bar physical characteristics, such as level of hardness and low internal stress.

Graybill discloses a conveyor system for conveying elements from a manufacturing machine to an end use machine where the rate of supply of the conveyor is controlled to provide a predetermined rate of the supply to the use machine. In particular, this invention comprises a conveyor system for conveying pies from an oven to a pie wrapping machine, the wrapping machine comprising a cooling conveyor, an accumulator conveyor and a retarder conveyor wherein optical sensors extending along the sides of the accumulator conveyor are used to aid in determining the backlog based on output from the sensors, which output is utilized to vary the rate of speed of the cooling conveyor to assure a proper backlog on the accumulator conveyor.

DesJarlais discloses a machine for performing the insertion of pre-formed plastic helical bookbinding coils into aligned holes at the edge of a book thereby binding the book. The machine comprises a platen for receiving the collated book; a coil engagement roller for engaging the coil at the edge of the platen and a coil drive roller for rotating the helical coil. Although not disclosed, it is presumed that the plastic helical coils, which must be provided to the insertion machine, can be provided in a variety ways, ranging from a simple, manual, one-by-one supply method, to an elaborate, automated and controlled feed mechanism based method.

Renz discloses, by way of a dedicated operator's manual, a machine for performing the operations of forming a spiral coil, the machine consisting of a combination material feed system, spiral coil heating and winding system and a cutting system for cutting to a desired length, segments of the spiral coil and ejecting the formed spiral segments from the machine.

In operation, the machine heats the feed material (plastic wire) to a temperature above the material's transition temperature, thereby allowing the spiral coil to be formed on a forming mandrel, cooling the formed coil to a temperature below the material's transition temperature, thereby allowing the shape to be permanently set, cutting the coil into segments of a desired length and ejecting the formed segments from the machine.

The examiner has identified the following defects in the application:

CLAIMS

Claim 1 does not comply with Section 28.3 of the Patent Act. The subject matter of this claim would have been, on the relevant claim date, obvious to a person skilled in the art or science to which it pertains having regard to **Wasgien**, in view of **Reese**. Specifically, **Wasgien** teaches all of the limitations of this claim , with the exception that the following concept is not expressly indicated:

- that the speed of the advancing conveyor is sufficiently controlled so as to place the coils in spaced relation to each other such that the ambient air surrounding the coils is able to lower their temperature such that as they approach an attached binding machine, the coils have cooled enough to allow them to be inserted into the final, to be bound, product.

This missing aspect of controlling cooling by way of part spacing and conveyor speed, although directed to the cooling of metal bars, is clearly taught by the **Reese** patent in that the referenced document discloses the concept of using the combination of the cooling capacity of ambient air along with both the velocity and run length of a transport mechanism; i.e. conveyor; to control the cooling of an element or part. As such, the subject matter of the **Reese** patent forms part of the common knowledge that was available prior to the claim date and is considered routine. Consequently, it would be obvious for someone skilled in the art, when given the prior art and presented with the same problem, to arrive at the same result as the applicant.

Furthermore, while **Reese** specifically addresses the problem of controlled cooling of metal components, the exact same parameters; i.e. conveyor velocity, spacing of components and ambient air temperature; apply to the problem of controlled cooling of plastic components, the subject of the present application. Additionally, the material properties of plastic; i.e. softening (or glass transition) temperature, melting point temperature, etc...; are equally well known as those for metals and, as such, it would not be difficult for someone sufficiently skilled in the art to combine the teachings of **Wasgien** and **Reese**, taking into consideration the

differences in the physical properties between metals and plastics, to arrive at the alleged invention of the present application.

Claims 2 to 13, 16 to 26 do not comply with Section 28.3 of the Patent Act. In particular, the subject matter of claims 2, 3, 5, 7, 13, 16, 18, 20, 21 and 26 would have been, on the relevant claim date, obvious to a person skilled in the art or science to which they pertain having regard to **Pfäffle**, in view of **Reese**. Specifically, **Pfäffle** teaches all of the limitations of these claims, with the exception that the following concepts are not expressly indicated:

- that the length of the advancing conveyor is sufficient to allow the hot formed plastic spiral binding coils to cool down close to room temperature, by way of cooling provided by the ambient air surrounding the coils, such that as they approach an attached binding machine, the coils are able to be inserted into the final, to be bound, product; and
- that the conveyor for transporting the formed plastic spiral binding coils is a linkage cooling conveyor.

These missing aspects, in particular the aspect of controlled cooling using the combination of the cooling capacity of ambient air along with the velocity and run length of a transport mechanism; i.e. conveyor; to control the cooling of an element or part, as previously mentioned, are clearly taught by the **Reese** patent. As such, the subject matter of the **Reese** patent forms part of the common knowledge that was available prior to the claim date and is considered routine. Consequently, it would be obvious for someone skilled in the art, when given the prior art and presented with the same problem, to arrive at the same result as the applicant.

It should further be noted that the aspect of controlling brittleness of the spiral binding coil does not appear to be, in itself, sufficiently novel and unobvious as to overcome the teachings of **Pfäffle**, in view of **Reese**. In particular, while the applicant claims that the plastic spiral binding coil is formed at a *first higher temperature*, no clear and unambiguous qualification is given as to the actual value of that *first higher temperature*. Rather, the applicant makes reference to the final, formed plastic spiral binding coil as being cooled "to a solid, non-brittle state" which implies that the *first higher temperature* must have been sufficient to at least have the potential of, with improper cooling, creating a brittle; i.e. poor quality; spiral binding coil. Based on that criterion, it must be assumed that the spiral binding coil is formed at a sufficiently high temperature so as to be at risk of embrittlement but then cooled in such a way as to prevent that deficiency from occurring. There is some concern about this scenario, however, in that it implies that the spiral binding coil is discharged from the forming process at a temperature well above the transition temperature; i.e. the plastic deformation temperature;

and is, in fact, still formable when discharged from the forming member and subsequently transferred to the conveyor. In that situation, there is a risk, if not an extreme likelihood, that the hot, unsupported coil will become permanently deformed from its intended, final shape thereby becoming a defective and non-usable part.

As for the subject matter of claims 4, 6, 8 to 12, 15, 17, 19 and 22 to 25 which pertain, variously, to:

i) the linkage cooling conveyor, in the disclosed machine, comprising: a wide belt supported by a stationary horizontal platen; a drive pulley communicating with and advancing the wide belt; a plurality of fins forming placement compartments for the plastic coils; a gear motor electrically connected to said drive pulley; and a motor speed controller connected to said gear motor, wherein the motor speed controller causes the drive pulley to intermittently rotate thereby intermittently advancing said plastic coil on said belt towards a binding machine;
ii) the conveyor, in the disclosed machine, being moved and advanced in incremental steps;
iii) the disclosed machine further comprising a sensor for detecting an end of the plastic spiral, the sensor being adjustable to a required spiral length as dictated by a book being bound by the binding machine, the sensor initiating cutting of the hot spiral by a cutter based on a signal from the sensor followed by the initiating of an index cycle of the motor to eject each individual coil segment, the linkage cooling conveyor having a plurality of compartments for holding the individual coil segments, the motor being stopped when a next compartment is detected by a detector;
iv) the disclosed machine further comprising a switch indexing advancing movement of the linkage cooling conveyor incrementally, to sequentially and discretely empty the compartments of the cooled spiral coils therefrom;
v) the drive motor of the disclosed machine being a DC direct current gear motor;
vi) the drive motor of the disclosed machine being an AC alternating current gear motor;
vii) the drive motor of the disclosed machine being a stepping motor;
viii) the feeding conveyor, in the disclosed machine, comprising an elongated horizontal chute horizontally disposed in alignment with the mandrel, the chute comprising a pair of opposing walls and a floor, the floor having motive means for urging a succession of coils fed into the feed end of the chute in the direction of the mandrel end of the chute; and
ix) the binding machine portion of the disclosed machine interacting with the spiral forming portion of the disclosed machine at compatible speeds to each other such that the formed spiral coils are transferred to the binding machine portion, by way of the cooling conveyor, at intermittent speeds;

the subject matter of each claim is directed to non-patentably significant subject matter, in the way of a design choice and/or a well known mechanical equivalent; which does not, alone or in

combination, produce a new or unexpected result over **Pfäffle**, in view of both **Reese** and the available common knowledge related to spiral forming machines and binding machines.

A further objection raised against claim 4 in that it is indefinite and does not comply with Subsection 27(4) of the Patent Act. The phrase "a gear motor electrically connected to said drive pulley" is misleading in that both the description, on pages 14 and 15, and the drawings, in figure 1, indicate that the gear motor (14) drives the timing belt and pulley arrangement (15) by way of a jackshaft, which jackshaft is a form of mechanical connection rather than a form of electrical connection.

A further objection raised against claim 15 in that it is indefinite and does not comply with Subsection 27(4) of the Patent Act. The term "leading-hole spreader members" (claim 15, line 4) lacks a proper antecedent basis with respect to claim 13.

DETAILED DESCRIPTION

During the prosecution of this application, the examiner identified the following clerical error in the description that the applicant may choose to correct:

- page 7, line 23, should read "...and spreads apart the coils of the spiral as they advance from an...".

Claim 14 appears to be allowable at this time.

In view of the foregoing defects, the applicant is requisitioned, under Subsection 30(2) of the Patent Rules, to amend the application in order to comply with the Patent Act and the Patent Rules or to provide arguments as to why the application does comply.

Daniel Weslake P. Eng.
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January 28, 2004

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Dear Sir/Madam:

This is to advise you that a protest under Rule 10 has been filed by Ade & Company of Winnipeg against the above mentioned application.

A copy of the acknowledgement letter is enclosed.

Yours truly,

Pierre Mayrand
Examination Support
Head, Team 1 & 2
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January 28, 2004

Ade & Company,
1700 Winnipeg Square
360 Main St.,
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R3C 3Z3

Your File - Votre Référence : 83541-680
Our File - Notre Référence : 9400-5-822

Dear Sir/Madam:

Reference is made to your letter dated January 19, 2004 protesting against Canadian Patent Application serial no. 2,321,937 in the name of Spiel Associates, Inc..

Your letter has been referred to the examiner in charge of the class of the invention involved.

Your protest will become part of the opened application file.

Yours truly,

Pierre Mayrand
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Head, Team 1 & 2
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